

## ASSESSMENT OF PROGRESS AND UPDATE TO THE CARBON MANAGEMENT PLAN (2010-2020)

July 2017

### INTRODUCTION

In 2011 the University published its carbon management plan 2010-16, which set out stretching but achievable targets for scope 1 & 2 CO<sub>2</sub>e emissions for 2015/16 & 2020/21, based on a 2009/10 baseline. In addition, targets were set for 3 areas of scope 3 CO<sub>2</sub>e emissions, where baseline data existed, and indicated that data collection, baselines and targets should be established for the other areas. The Plan was developed with the Carbon Trust, and satisfies the requirements of HEFCE's Capital Investment Framework 2 (CIF2).

This report provides an update to the plan through to 2020, setting it within the current context (2016/17), and updating scope 3 baselines and targets to 2020.

The original scope of the plan is set out in fig 1, along with the target statements in fig. 2.

WBCSD	Emission Source	Included in CMP	CIF 2 requirement
Scope 1	Fuel (gas) use in University Buildings	Yes	Yes
Scope 1	Fleet transport emissions	Yes	Yes
Scope 1	Refrigerant gas loss	Yes	Yes
Scope 2	Electricity consumption in Buildings	Yes	Yes
Scope 3	Business travel	Yes	No
Scope 3	Waste disposal	Yes	No
Scope 3	Water Consumption	Yes	No
Scope 3	Staff Commuting	Yes	No
Scope 3	Student Commuting	Yes	No
Scope 3	Procurement	No	No

Fig. 1: Scope of CMP (2010-16)

Canterbury Christ Church University's target is to reduce Scope 1 & 2 carbon dioxide emissions from electricity, gas and University vehicles by 35% from the 2009-10 level by July 2016.

By 2020 CCCU is targeting a reduction in Scope 1 & 2 emissions of 57% from the 2009-10 level.

Scope 3 emissions from business travel, water and waste will be subject to a 20% reduction target from the 2009/10 level by March 2016 and a 35% reduction target by 2020.

The baseline for staff and student commuting will be determined in the 2011-12 academic year. Scope 3 CO<sub>2</sub> emissions from staff and student commuting will be subject to a 20% reduction target from the established baseline by 2020.

Through the implementation of the carbon management plan the University will work to determine the scope of CO<sub>2</sub> emissions from its procurement activities and ways that these can be reduced

A vision target for 2050 CO<sub>2</sub> emissions levels will be published by 2016

Fig. 2: Targets and objectives from CMP (2010-16)

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Targets were set in the context of those defined within the UK Climate Change Act 2008, and in support of HEFCE's targets for the sector. These are detailed more specifically in fig. 3 & 4 below.

	Source	2009/10 usage	units	Cost 2009/10	Tonnes CO <sub>2</sub> e	Reduction Target	
						2015/16	2020/21
Electricity	Meter readings	12,190,822	kWh	£1,145,937	<b>6647</b>	35%	57%
Gas	Meter readings	14,761,178	kWh	£442,835	<b>2734</b>		
CCCU Vehicles	Invoice data	10,112	litres	£12,006	<b>27</b>		

Fig. 3: Scope 1 & 2 baselines and targets.

	Source	2009/10 value	units	Cost 2009/10	Tonnes CO <sub>2</sub> e	Reduction Target		
						2015/16	2020/21	
3a	Water Consumption	Water bills	76,142	m <sup>3</sup>	£303,429	<b>30</b>	20%	35%
3a	Waste to landfill	Waste contractor records	643	tonnes	£110,284	<b>287</b>		
3a	Business mileage	Expenses	1,341,800	miles	£517,183	<b>531</b>		
3a	Bus & Train	Only some journeys captured in Finance records as £ values				TBD	20%	
3a	Business air travel	Only some journeys captured in Finance records as £ values						
3a	Procurement	Excluded from CMP but scope of procurement footprint to be determined by 2016						
3a	Int'nat student air travel	No centralised data available				See note		
3b	Staff Commuting	Based on postcode analysis & modes			<b>1,900-2,900</b>	TBD	20%	
3b	Student Commuting	Postcode analysis difficult due to number of offsite programmes						

Fig. 4: Scope 3 baselines and targets.

## ASSESSMENT OF PROGRESS

During the period of the plan to 2016, there have been significant developments in relation to reporting, policy and estate. These are outlined in the paragraphs below. Fig. 5 provides an overview of the current status with respect to all scope 1, 2 & 3 emissions, as stated within the CMP (2010-16)

Scope	Category	2009/10 Baseline T/CO <sub>2</sub> e (revised)	2010/11 Baseline T/CO <sub>2</sub> e	2015/16 Actual	2015/16 Target Reduction	2015/16 Actual Reduction	2020/21 Target Reduction
1	Gas	2766		2255	25% (35%)	18%	35% (57%)
1	Vehicle fuel	26		33	25%	-22%	35% (57%)
2	Electricity	5916		4771	25%	19%	35% (57%)
<b>Scope 1 &amp; 2 Total</b>						<b>19%</b>	
3a	Water cons.	30		45	20%	-50%	35%
3a	Waste	287		19	20%	93%	35%
3a	Business Mileage	531		340	20%	36%	35%
<b>Water/Waste/Mileage Total</b>						<b>52%</b>	
3a	Bus & Train		388	248	None	-98%	20%
3a	Business air		143	344	None	-141%	20%
<b>Bus/Train/Air Total</b>						<b>-125%</b>	
3a	Student Placement		1085	172	None	84%	
3a	Procurement			28,000	None	N/A	
3a	Int. student air	Not known	N/K	N/K	None	N/K	
3b	Staff commuting				None	None	20%
3b	Student commuting				None	None	20%

Fig. 5: Scope 1, 2 & 3 carbon emissions status in relation to CMP (2010-16)

### Emissions factors

In 2014 DEFRA published new emissions factors, which also covered the reporting period of the CMP (2010-16). Thus, scope 1 & 2 emissions for 2009-13 were recalculated, which resulted in a restatement of the baseline figures included in Fig. 5.

### Emissions targets

During the planning process for the Strategic Plan 2011-14, the University recognised the 35% reduction target for scope 1 & 2 emissions by 2016/17 as an aspirational and set a more achievable target of 25% as a minimum. This equates to a 35% reduction target by 2020/21, and the figures in brackets in Fig. 5 are the original CMP (2010-16) targets.

*Recommendation: A new carbon management plan should be developed and put in place for the period 2020/21 to 2050, which is set in the context of the 'Low carbon vision' and the Estate Master Plan.*

## SCOPE 1 & 2 EMISSIONS

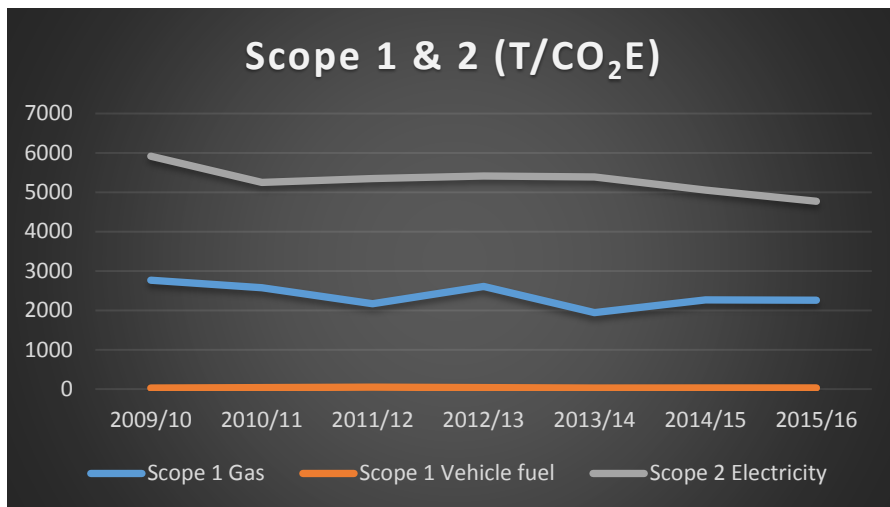


Fig. 6: Scope 1 & 2 carbon emissions from 2009/10 baseline.

### Gas use

Emissions from use of gas for heating has reduced by 18% during the period. This represents a significant reduction, but one that falls short of the target. This is largely due to 1) the high reliance on older building stock and its limited insulation properties, and 2) changes in the physical estate; most significantly, through the purchase of the former Canterbury prison site, and the construction of Petros Court student accommodation, which have had a 5% impact on scope 1 & 2 emissions.

*Recommendation: Implement more rigorous meter tracking, building analysis and user feedback strategies, in order to understand and target identified opportunities for savings.*

Governance – Carbon Management Oversight Group
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Policy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>
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Strategy - Carbon Management Plan (2010-16)
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### Vehicle fuel use

There has been an increase in vehicle use and resultant emissions during the period. Whilst the vehicle fleet was replaced in 2014/15, changes in the scale and complexity of the estate in Canterbury are likely to have caused this increase. However, the impact of the Estate Master Plan, and the resultant estate consolidation, is likely to have a positive effect on vehicle emissions in the medium to longer term.

*Recommendation: Continue to monitor vehicle emissions on an annual basis*

Governance – Carbon Management Oversight Group
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Policy @ - <a href="http://www.canterbury.ac.uk/about-us/docs/sustainability/energy-management-policy.pdf">http://www.canterbury.ac.uk/about-us/docs/sustainability/energy-management-policy.pdf</a>
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Strategy - Carbon Management Plan (2010-16)
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### Electricity use

Emissions from electricity use have fallen by 19% during the period, which falls short of the target. However, as with gas use, this has been impacted on by the growth of the estate in recent years.

Additionally, whilst the University IT infrastructure has become significantly more efficient, it has also grown, which has largely wiped out any projected savings in this area.

*Recommendation: Implement more granular sub-metering strategies in order to track building performance, provide user feedback and identify opportunities for savings.*

Governance – Carbon Management Oversight Group
Policy @ - <a href="http://www.canterbury.ac.uk/about-us/docs/sustainability/energy-management-policy.pdf">http://www.canterbury.ac.uk/about-us/docs/sustainability/energy-management-policy.pdf</a>
Strategy - Carbon Management Plan (2010-16)

## SCOPE 3 EMISSIONS

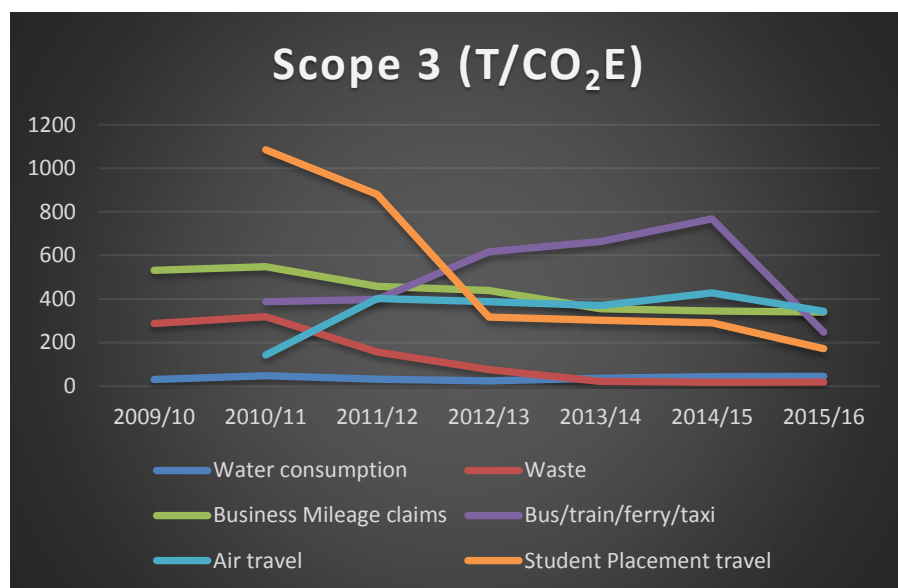


Fig. 7: Scope 3 carbon emissions from 2009/10 and 2010/11 baselines.

### Water consumption

CMP (2010-16) set a baseline and target for water consumption. Subsequently, reporting has also included emissions from wastewater. To ensure comparability, the figures in Fig. 5 only include water consumption. However, emissions from water usage have increased by 50%, which is likely to be attributable to the increase in student accommodation during this period.

*Recommendation: Water consumption from student accommodation should be reported separately so that water reduction strategies can be put in place.*

Governance – Carbon Management Oversight Group
Policy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>
Strategy – Carbon Management Plan (2010-16)

### Waste to landfill

In the baseline year (2009/10) all university waste was sent to landfill, as a consequence of the immaturity of the recycling sector in Kent, and the incumbent waste contractor (Viridor). In 2013, the University became one of the first Universities to introduce a “zero waste to landfill” policy. The new waste contractor (SITA) utilised Waste to Energy opportunities in Western Europe, and associated emissions reduced considerably. Further improvements were made when the waste

contract was awarded to CountryStyle, a Kent based firm focusing on local waste processing. Additionally, an increasing proportion of waste is being recycled. Consequently, there has been a 93% reduction in emissions from waste since the baseline year. However, waste from construction and refurbishment needs to be systematically recorded and reported separately.

*Recommendation: Waste from construction and refurbishment should be recorded and reported separately to ensure that the full scope of emissions from waste are understood.*

Governance – Waste Management and Recycling Working Group
Policy - <a href="http://www.canterbury.ac.uk/about-us/docs/sustainability/waste-and-recycling-management-policy.pdf">http://www.canterbury.ac.uk/about-us/docs/sustainability/waste-and-recycling-management-policy.pdf</a>
Strategy - <a href="http://www.canterbury.ac.uk/about-us/docs/sustainability/waste-management-strategy.pdf">http://www.canterbury.ac.uk/about-us/docs/sustainability/waste-management-strategy.pdf</a>

## Business mileage

The business mileage baseline was taken from staff expenses claims and continues to be gathered manually. Over the plan period there has been a 36% reduction in mileage claims for travel. However, as can be seen from Fig. 5, there has been a more significant increase in Bus, Train & air travel during the period.

Governance – Travel and Sustainable Business Working Group
Policy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>
Strategy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>

## Bus & Train

Emissions from business travel using Buses & Trains travel, along with taxis and ferries, was not known at the time the baseline year was set. Since, 2010/11 this data has been collected annually through staff expenses claims, purchase ledger and latterly through Key Travel. A 98% increase in emissions from these modes is likely to illustrate a shift from car use (mileage claims), as well as a general increase in the amount of national business travel.

*Recommendation: data collection strategies for bus, train, taxis and ferries should to be rationalised, and travel mode policy should be agreed.*

Governance – Travel and Sustainable Business Working Group
Policy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>
Strategy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>

## Business air travel

Emissions from business air travel was not known at the time the baseline year was set. Since, 2010/11 this data has been collected annually through staff expenses claims, purchase ledger and latterly through Key Travel. The increase in emissions from business air travel is likely to be directly related to the university's international agenda, along with increasing use of internal flights.

*Recommendation: data collection strategies for air travel should be rationalised, and air travel policy should be agreed.*

Governance – Travel and Sustainable Business Working Group
Policy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>
Strategy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>

## Student placement travel

Whilst student placement travel was identified as within the CMP (2010-16) as bus travel, but was not readily available at the time the baseline was set. Subsequently, data for the category has been collected, and includes buses and student travel claims. However, it is not possible to separate these since all financial information related to student placement travel goes against the same code. Additionally, it is uncertain as to whether this should be regarded as business travel or commuting. As such, it has been reported separately, but also shows a significant reduction of 84%.

*Recommendation: student placement data collection processes should be rationalised to facilitate further analysis by mode.*

<i>Governance – Travel and Sustainable Business Working Group</i>
<i>Policy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a></i>
<i>Strategy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a></i>

## Procurement

A considerable amount of work was carried out during 2012/13, using guidance from the HEFCE and the supply chain emissions tool, in order to establish a carbon emissions baseline position for Scope 3 supply chain emissions. However, since the approach could only monitor carbon reductions through either spend reduction in specific commodity areas, or through on-going reduction in published supply chain emissions factors, concern was raised over the validity and usefulness of the approach. In addition to this DEFRA discontinued publication of supply chain emissions factors in 2013, thus reinforcing the University's view.

In order to provide a high level monitor of the University's supply chain emissions, the tool has been used to compare 6 years (2009-15) of spend and to provide an average gross emission figure to compare with the other scope 1, 2 & 3 emissions. Overall, £45-50m (excluding capital) was spent on goods and services in each of the 6 years. On average the University's supply chain emissions were calculated to be 27,938 tonnes CO<sub>2</sub>e per year, which equates to 0.58kg CO<sub>2</sub>e per year for every pound that the University spends.

*Recommendation: More detailed analysis and tracking should be undertaken for high spend areas (Estates, Facilities and IT) to identify opportunities for carbon savings and track progress.*

<i>Governance – Sustainable Procurement Working Group</i>
<i>Policy – embedded within Procurement Strategy</i>
<i>Strategy @ – <a href="http://www.canterbury.ac.uk/about-us/docs/sustainability/procurement-strategy.pdf">http://www.canterbury.ac.uk/about-us/docs/sustainability/procurement-strategy.pdf</a></i>

## International student air travel

No data was available at the instigation of the Carbon Management Plan, and no further work has been undertaken to establish this footprint.

*Recommendation: Consider ways in which international student travel data can be captured, so that carbon impact can be tracked.*

## Staff and Student Commuting

The University Travel Plan survey (2009) established the percentage of staff commuting by car, and set targets to reduce this, which were embedded within the Carbon Management Plan. A parking permit eligibility scheme and charging regime were instigated to support the reduction targets. The 2011 travel survey was not carried out, so it is not possible to establish whether the targets were met as a direct consequence. However, a comprehensive travel survey was carried out in 2015 to support the development of a new travel plan, established that the % of people commuting by car had reduced in Canterbury, but increased at other locations.

	Canterbury	Broadstairs	Hall Place	Medway	Salomons
2009 Survey	59%	70%	63%	86%	84%
2011 Target	50%	65%	60%	75%	75%
2015 Survey	54%	72%		90%	100%
Reduction from 2009	5%	-2%		-4%	-16%

Fig. 8: Comparison of commuting by car use from 2009-2015 (Note: 2015 survey includes Hall Place % within the overall Canterbury %.)

The estimated carbon impact of staff commuting stated within the Carbon Management Plan, has not be recalculated, however the post code analysis itself has been completed. A student commuting survey was not undertaken in 2009, but was included as part of the 2015 survey.

The overall carbon impact of staff and student commuting will only be established effectively, when systematic data collection of mode, distance and frequency, collected annually and embedded within staff and student records systems.

*Recommendation: Implement systematic data collection strategies for both staff and students through the appropriate HR and Student Record systems, so that carbon impact can be tracked and opportunities for savings can be considered for implementation.*

Governance – Travel and Sustainable Business Working Group
Policy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>
Strategy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>

## Estate Master Plan

The Estate Master Plan (EMP) sets out the blueprint for the development of the University's estate over the next 10 to 15 years. Embedded within the plan is the University's Low Carbon Vision (LCV), which will be used to inform the design and development process. The next carbon management Plan (2020-2050) will be set within the context of both the EMP and LCV.

*Recommendation: Develop a new carbon management plan (CMP) that sets targets based on the phasing of the EMP and the principles of the LCV.*

*Estate Master Plan - <http://www.canterbury.ac.uk/about-us/master-planning-review/introduction-to-the-estate-master-plan.aspx>*

## Low carbon vision

The Low Carbon Vision sets out some key principles, more detailed considerations and actions to reduce significantly the emissions from the estate and to improve its overall environmental sustainability.

*Recommendation: Ensure that the Estate Master Plan continues to be led by the Low Carbon Vision and that the new Carbon Management Plan is set within the context of them, such that the*



University can reduce Scope 1 & 2 emissions from the University estate in line with national and sector targets for 2050.

Governance – Carbon Management Oversight Group
Policy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>
Strategy @ - <a href="http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx">http://www.canterbury.ac.uk/business-and-community/sustainability/strategies-and-policies.aspx</a>

## Maturity assessment

The CMP (2010-16) includes a carbon management embedding matrix, which provided an assessment of carbon management maturity at the time of publication (Fig. 9)

	POLICY	RESPONSIBILITY	DATA MANAGEMENT	COMMUNICATION & TRAINING	FINANCE & INVESTMENT	PROCUREMENT	MONITORING & EVALUATION
5 <b>BEST</b>	<ul style="list-style-type: none"> <li>SMART Targets signed off</li> <li>Action plan contains clear goals &amp; regular progress reviews</li> <li>Strategy launched internally &amp; to community</li> </ul>	<ul style="list-style-type: none"> <li>CM is full-time responsibility of a few people</li> <li>CM integrated in responsibilities of senior managers</li> <li>VC support</li> <li>Part of all job descriptions</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly collation of CO<sub>2</sub> emissions for all sources</li> <li>Data externally verified</li> <li>M&amp;T in place for:               <ul style="list-style-type: none"> <li>Buildings</li> <li>Waste</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>All staff &amp; students given formalised CM:               <ul style="list-style-type: none"> <li>Induction</li> <li>Training Plan</li> <li>Communications</li> </ul> </li> <li>CM matters regularly communicated to:               <ul style="list-style-type: none"> <li>External community</li> <li>Key partners</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Granular &amp; effective financing mechanisms for CM projects</li> <li>Finance representation on CM Team</li> <li>Robust task management mechanism</li> <li>Ring-fenced fund for carbon reduction initiatives</li> </ul>	<ul style="list-style-type: none"> <li>Senior purchasers consult &amp; adhere to ICLEI's Procura+ manual &amp; principles</li> <li>Sustainability comprehensively integrated in tendering criteria</li> <li>Whole life costing</li> <li>Area-wide procurement</li> </ul>	<ul style="list-style-type: none"> <li>Senior management review CM process</li> <li>Core team regularly reviews CM progress</li> <li>Published externally on website</li> <li>Visible board level review</li> </ul>
4	<ul style="list-style-type: none"> <li>SMART Targets developed but not implemented</li> </ul>	<ul style="list-style-type: none"> <li>CM is full-time responsibility of an individual</li> <li>CM integrated in to responsibilities of department managers, not all staff</li> </ul>	<ul style="list-style-type: none"> <li>Annual collation of CO<sub>2</sub> emissions for:               <ul style="list-style-type: none"> <li>Buildings</li> <li>Transport</li> <li>waste</li> </ul> </li> <li>Data internally reviewed</li> </ul>	<ul style="list-style-type: none"> <li>All staff &amp; students given CM:               <ul style="list-style-type: none"> <li>Induction</li> <li>Communications</li> </ul> </li> <li>CM communicated to:               <ul style="list-style-type: none"> <li>External community</li> <li>Key partners</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Regular financing for CM projects</li> <li>Some external financing</li> <li>Sufficient task management mechanism</li> </ul>	<ul style="list-style-type: none"> <li>Environmental demands incorporated in tendering</li> <li>Familiarity with Procura+</li> <li>Joint procuring between HEIs or with LAs.</li> </ul>	<ul style="list-style-type: none"> <li>Core team regularly reviews CM progress:               <ul style="list-style-type: none"> <li>Actions</li> <li>Profile &amp; Targets</li> <li>New opportunities quantification</li> </ul> </li> </ul>
3	<ul style="list-style-type: none"> <li>Draft policy</li> <li>Climate Change reference</li> </ul>	<ul style="list-style-type: none"> <li>CM is part-time responsibility of a few people</li> <li>CM responsibility of department champions</li> </ul>	<ul style="list-style-type: none"> <li>Collation of CO<sub>2</sub> emissions for limited scope i.e. buildings only</li> </ul>	<ul style="list-style-type: none"> <li>Environmental / energy group(s) give ad hoc:               <ul style="list-style-type: none"> <li>Training</li> <li>Communications</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Ad hoc financing for CM projects</li> <li>Limited task management</li> <li>No allocated resource</li> </ul>	<ul style="list-style-type: none"> <li>Whole life costing occasionally employed</li> <li>Some pooling of environmental expertise</li> </ul>	<ul style="list-style-type: none"> <li>CM team review aspects including:               <ul style="list-style-type: none"> <li>Policies / Strategies</li> <li>Targets</li> <li>Action Plans</li> </ul> </li> </ul>
2	<ul style="list-style-type: none"> <li>No policy</li> <li>Climate Change aspiration</li> </ul>	<ul style="list-style-type: none"> <li>CM is part-time responsibility of an individual</li> <li>No departmental champions</li> </ul>	<ul style="list-style-type: none"> <li>No CO<sub>2</sub> emissions data compiled</li> <li>Energy data compiled on a regular basis</li> </ul>	<ul style="list-style-type: none"> <li>Regular poster/awareness campaigns</li> <li>Staff given ad hoc CM:               <ul style="list-style-type: none"> <li>Communications</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Ad hoc financing for CM related projects</li> <li>Limited task coordination resources</li> </ul>	<ul style="list-style-type: none"> <li>Green criteria occasionally considered</li> <li>Products considered in isolation</li> </ul>	<ul style="list-style-type: none"> <li>Ad hoc reviews of CM actions progress</li> </ul>
1 <b>Worst</b>	<ul style="list-style-type: none"> <li>No policy</li> <li>No Climate Change reference</li> </ul>	<ul style="list-style-type: none"> <li>No CM responsibility designation</li> </ul>	<ul style="list-style-type: none"> <li>Not compiled:               <ul style="list-style-type: none"> <li>CO<sub>2</sub> emissions</li> </ul> </li> <li>Estimated billing</li> </ul>	<ul style="list-style-type: none"> <li>No communication or training</li> </ul>	<ul style="list-style-type: none"> <li>No internal financing or funding for CM related projects</li> </ul>	<ul style="list-style-type: none"> <li>No Green consideration</li> <li>No life cycle costing</li> </ul>	<ul style="list-style-type: none"> <li>No CM monitoring</li> </ul>

Fig. 9: Carbon management maturity assessment 2010

A reassessment of carbon maturity has been undertaken for 2017, which is displayed below in Fig. 10. This demonstrates significant improvement across all of the seven areas. However, there is a need to improve data management, communication and training, and procurement activities.

*Recommendation: The carbon governance structure is reviewed to ensure that we aspire to best practice in carbon management.*

	POLICY	RESPONSIBILITY	DATA MANAGEMENT	COMMUNICATION & TRAINING	FINANCE & INVESTMENT	PROCUREMENT	MONITORING & EVALUATION
5 <b>BEST</b>	<ul style="list-style-type: none"> <li>SMART Targets signed off</li> <li>Action plan contains clear goals &amp; regular progress reviews</li> <li>Strategy launched internally &amp; to community</li> </ul>	<ul style="list-style-type: none"> <li>CM is full-time responsibility of a few people</li> <li>CM integrated in responsibilities of senior managers</li> <li>VC support</li> <li>Part of <b>all</b> job descriptions</li> </ul>	<ul style="list-style-type: none"> <li><b>Quarterly</b> collation of CO<sub>2</sub> emissions for all sources</li> <li>Data <b>externally</b> verified</li> <li>M&amp;T in place for: <ul style="list-style-type: none"> <li>Buildings</li> <li>Waste</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>All staff &amp; students given formalised CM: <ul style="list-style-type: none"> <li>Induction</li> <li>Training Plan</li> <li>Communications</li> </ul> </li> <li>CM matters <b>regularly</b> communicated to: <ul style="list-style-type: none"> <li>External community</li> <li>Key partners</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Granular &amp; effective</b> financing mechanisms for CM projects</li> <li><b>Finance representation on CM Team</b></li> <li><b>Robust</b> task management mechanism</li> <li><b>Ring-fenced fund</b> for carbon reduction initiatives</li> </ul>	<ul style="list-style-type: none"> <li>Senior purchasers consult &amp; adhere to ICLEI's <b>Procura+</b> manual &amp; principles</li> <li>Sustainability comprehensively integrated in <b>tendering</b> criteria</li> <li>Whole life costing</li> <li>Area-wide procurement</li> </ul>	<ul style="list-style-type: none"> <li>Senior management review CM process</li> <li>Core team regularly reviews CM progress</li> <li>Published externally on website</li> <li>Visible board level review</li> </ul>
4	<ul style="list-style-type: none"> <li>SMART Targets <b>developed but not implemented</b></li> </ul>	<ul style="list-style-type: none"> <li>CM is <b>full-time</b> responsibility of an <b>individual</b></li> <li>CM integrated in to responsibilities of department <b>managers</b>, not all staff</li> </ul>	<ul style="list-style-type: none"> <li><b>Annual</b> collation of CO<sub>2</sub> emissions for: <ul style="list-style-type: none"> <li>Buildings</li> <li>Transport</li> <li>waste</li> </ul> </li> <li>Data <b>internally</b> reviewed</li> </ul>	<ul style="list-style-type: none"> <li>All staff &amp; students given CM: <ul style="list-style-type: none"> <li><b>Induction</b></li> <li>Communications</li> </ul> </li> <li>CM communicated to: <ul style="list-style-type: none"> <li>External community</li> <li>Key partners</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Regular financing for CM projects</li> <li>Some external financing</li> <li><b>Sufficient</b> task management mechanism</li> </ul>	<ul style="list-style-type: none"> <li>Environmental demands incorporated in tendering</li> <li>Familiarity with <b>Procura+</b></li> <li><b>Joint procuring</b> between HEIs or with LAs.</li> </ul>	<ul style="list-style-type: none"> <li><b>Core team regularly</b> reviews CM progress: <ul style="list-style-type: none"> <li>Actions</li> <li>Profile &amp; Targets</li> <li>New opportunities quantification</li> </ul> </li> </ul>
3	<ul style="list-style-type: none"> <li><b>Draft</b> policy</li> <li>Climate Change <b>reference</b></li> </ul>	<ul style="list-style-type: none"> <li>CM is <b>part-time</b> responsibility of a <b>few</b> people</li> <li>CM responsibility of department champions</li> </ul>	<ul style="list-style-type: none"> <li>Collation of CO<sub>2</sub> emissions for limited scope i.e. buildings only</li> </ul>	<ul style="list-style-type: none"> <li><b>Environmental / energy</b> group(s) give ad hoc: <ul style="list-style-type: none"> <li>Training</li> <li>Communications</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Ad hoc</b> financing for CM projects</li> <li>Limited task management</li> <li>No allocated resource</li> </ul>	<ul style="list-style-type: none"> <li><b>Whole life</b> costing occasionally employed</li> <li>Some pooling of environmental expertise</li> </ul>	<ul style="list-style-type: none"> <li>CM team review aspects including: <ul style="list-style-type: none"> <li><b>Policies / Strategies</b></li> <li>Targets</li> <li>Action Plans</li> </ul> </li> </ul>
2	<ul style="list-style-type: none"> <li>No policy</li> <li>Climate Change <b>aspiration</b></li> </ul>	<ul style="list-style-type: none"> <li>CM is <b>part-time</b> responsibility of an <b>individual</b></li> <li>No departmental champions</li> </ul>	<ul style="list-style-type: none"> <li><b>No</b> CO<sub>2</sub> emissions data compiled</li> <li>Energy data compiled on a regular basis</li> </ul>	<ul style="list-style-type: none"> <li>Regular poster/awareness campaigns</li> <li>Staff given ad hoc CM: Communications</li> </ul>	<ul style="list-style-type: none"> <li>Ad hoc financing for CM <b>related</b> projects</li> <li>Limited task coordination <b>resources</b></li> </ul>	<ul style="list-style-type: none"> <li>Green criteria occasionally considered</li> <li>Products considered in isolation</li> </ul>	<ul style="list-style-type: none"> <li>Ad hoc reviews of CM actions progress</li> </ul>
1 <b>Worst</b>	<ul style="list-style-type: none"> <li>No policy</li> <li><b>No</b> Climate Change reference</li> </ul>	<ul style="list-style-type: none"> <li>No CM responsibility designation</li> </ul>	<ul style="list-style-type: none"> <li>Not compiled: <ul style="list-style-type: none"> <li>CO<sub>2</sub> emissions</li> <li>Estimated billing</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>No communication or training</li> </ul>	<ul style="list-style-type: none"> <li>No internal financing or funding for CM related projects</li> </ul>	<ul style="list-style-type: none"> <li>No Green consideration</li> <li>No life cycle costing</li> </ul>	<ul style="list-style-type: none"> <li>No CM monitoring</li> </ul>

Fig. 10: Carbon management maturity assessment 2017

## CONCLUSIONS

The publication of the Carbon Management Plan (2010-16) was the first time the University had considered its whole carbon impact. It set targets for scope 1, 2 & 3 carbon emissions based on a rigorous assessment, with the assistance of the Carbon Trust. Whilst data was available to set baselines for Scope 1 & 2 emissions, and for some scope 3 emissions, it was evident that data collection needed to be improved and targets set across the full range of impact.

In 2010/11 data collection for the remaining areas of scope 3 emissions was put in place and new baselines were created. All data is reported annually to the Senior Management Team and the Governing Body, however there is room for improvement in carbon governance more generally, as indicated by the carbon maturity assessment. A series of recommendations have been provided within the report, which should be considered by the Sustainability Strategic Management Group (SSMG) along with the creation of the appropriate carbon governance structure.

It is clear that some aspirational targets have been achieved, and others are more challenging, which is a reflection of the significant amount of change within the University that has had either direct or indirect impact. This is unsurprising and common across the sector, given the sector-wide marketization and transformation that is on-going. However, with the benefit of experience, policy, clarity over the Estate Master Plan, and an underpinning Low Carbon Vision, it is now timely that the University reviews and restates its carbon reduction targets for 2020-2050, and puts in place the data collection and carbon governance to ensure that it meets them.

Dr Peter Rands

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